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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,945	03/15/2005	Ercan Ferit Gigi	NL02 0857 US	2403
24737	7590	07/28/2008		
PHILIPS INTELLECTUAL PROPERTY & STANDARDS				
P.O. BOX 3001				
BRIARCLIFF MANOR, NY 10510				
EXAMINER				
LERNER, MARTIN				
ART UNIT		PAPER NUMBER		
2626				
MAIL DATE		DELIVERY MODE		
07/28/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/527,945

**Applicant(s)**

GIGI, ERCAN FERIT

**Examiner**

MARTIN LERNER

**Art Unit**

2626

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 to 11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 to 10 is/are allowed.
- 6) ☒ Claim(s) 11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 May 2008 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-85/86)  
Paper No(s)/Mail Date 05/20/2008
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because there are handwritten elements in Figure 1. Applicant has provided a marked-up version of Figure 1, indicating that it is "Prior Art", but has not provided a formal replacement sheet due to the presence of handwritten elements.

### *Claim Objections*

2. Claim 11 is objected to because of the following informalities:

Claim 11 is informal because it is not a grammatically complete sentence.

Applicant's amendment to the claim ends in the phrase "from a set of pitch bells which are obtained by." Applicant needs to amend the claim so that it is complete.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Violaro et al.* ("A Hybrid Model for Text-to-Speech Synthesis") in view of *Gigi* ('960).

Concerning independent claim 11, *Violaro et al.* discloses a method for performing text-to-speech synthesis, comprising:

“determining a plurality of pitch bell locations within an original sound signal, said locations being distanced by one period of a fundamental frequency” – the first step in the speech analysis is to provide a pitch marking (Page 426: Right Column: I. Introduction; Page 427: Right Column: II. Pitch Marks: Figure 1); Figure 1(a) to 1(d) shows the pitch markings for an unmodified and a modified speech signal; an unmodified speech signal (“an original sound signal”) is represented as the upper of the two graphs in Figures 1(a) to 1(d) with the “pitch bell locations” being indicated by the dashed lines; “one period of a fundamental frequency” is equivalent to a pitch period of an unmodified speech signal;

“determining a plurality of pitch bells associated with each of said pitch bell locations, said pitch bells being determined by windowing said original sound signal” – Hanning windowed segments are centered at the pitch marks (“pitch bell locations”) (Page 426: Right Column: I. Introduction; Page 427: Right Column: II. Pitch Marks: Figure 1);

“determining a plurality of pitch bell locations within a signal to be synthesized, said locations being distanced by one period of a frequency associated with said synthesized signal” – the first step in the speech analysis is to provide a pitch marking (Page 426: Right Column: I. Introduction; Page 427: Right Column: II. Pitch Marks: Figure 1); Figure 1(a) to 1(d) shows the pitch markings for an unmodified and a modified speech signal; a modified speech signal is represented as the lower of the two graphs in

Figures 1(a) to 1(d) with the "pitch bell locations" being indicated by the dashed lines; thus, an unmodified speech signal ("original sound signal") is transformed into a modified speech signal ("said synthesized signal") having a decreased or an increased pitch, where a pitch period of the modified speech signal is equivalent to "a frequency associated with said synthesized signal";

"overlapping and adding said selected of pitch bells at said synthesized pitch bell locations" – each of the segments is subjected to either time-domain pitch synchronous overlap-add (TD-PSOLA) or a hybrid overlap-add (OLA) (Page 426: Right Column: I. Introduction; Page 428: Left Column: III. Noise Component Calculation and Modeling).

Concerning independent claim 11, the only elements not expressly disclosed by *Violaro et al.* are "randomly selecting for each of a plurality of pitch bell locations within said synthesized signal one of said pitch bells associated with said original signal" and "each of the pitch bells being randomly selected from a set of pitch bells which are obtained by". However, *Gigi ('960)* teaches a method of manipulating a length of an audio signal in the same field of endeavor involving periodic and non-periodic components, where a periodic signal is transformed into a new periodic signal with a different period but approximately the same spectral envelope by mutual compression/expansion of distances between the segments. A window function is employed to extend over two pitch periods, L. (Column 5, Lines 47 to 49: Figure 1; Column 6, Lines 6 to 65: Figure 2) Windows are positioned centered at voice marks, or "pitch bell locations". (Column 7, Lines 17 to 19: Figure 1) Specifically, *Gigi ('960)* provides a method where a random number generator is used to shuffle locations of

segments to ensure that the spectral content of successive segments in a synthesized sequence is different from the original sequence of spectral content to minimize spectral repetitiveness and to permit a better distribution of spectral content. (Column 10, Lines 5 to 41: Figure 5) It would have been obvious to one having ordinary skill in the art to randomly select locations of pitch bells for a synthesized sound signal as taught by *Gigi* ('960) in a method for text-to-speech synthesis with pitch modification of *Violaro et al.* for a purpose of minimizing spectral repetitiveness.

***Allowable Subject Matter***

5. Claims 1 to 10 are allowed.
6. The following is a statement of reasons for the indication of allowable subject matter:

Concerning independent claims 1, 8, and 9, the prior art of record does not disclose or reasonably suggest a type of windowing that is determined based on a type of sound signal for pitch modification. Applicant's Specification, Page 4, Lines 12 to 22, discloses that a voiced hybrid sound may be windowed with a cosine function, and an unvoiced sound signal may be windowed with a sine function. The prior art of record does not disclose or reasonably suggest a windowing method that is determined based on a type of sound signal in combination with randomly selecting pitch bell locations and overlap-add for changing a pitch of a synthesized sound signal.

***Response to Arguments***

7. Applicant's arguments filed 13 May 2008 have been considered but are moot in view of the new grounds of rejection.

Independent claim 11 is significantly rewritten as a new claim, and differs in scope substantially from independent claims 1, 8, and 9, at least because it does not include the limitation of "said type of windowing being determined based on a type of said second sound signal". Thus, a final rejection based upon new grounds of rejection is appropriate given the substantial amendment of independent claim 11.

***Conclusion***

8. Applicant's amendment necessitated the new grounds of rejection presented in this Office Action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin Lerner whose telephone number is (571) 272-7608. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Martin Lerner/  
Primary Examiner  
Art Unit 2626  
July 23, 2008